Next Generation 9-1-1
Information & Collaboration
July, 2017
California 9-1-1 Emergency Communications Branch

Purposes

- Overview of California 9-1-1 System
- Answer question: Why Next Gen 9-1-1?
- Overview of Next Gen 9-1-1 Transition
- Role of Cal OES
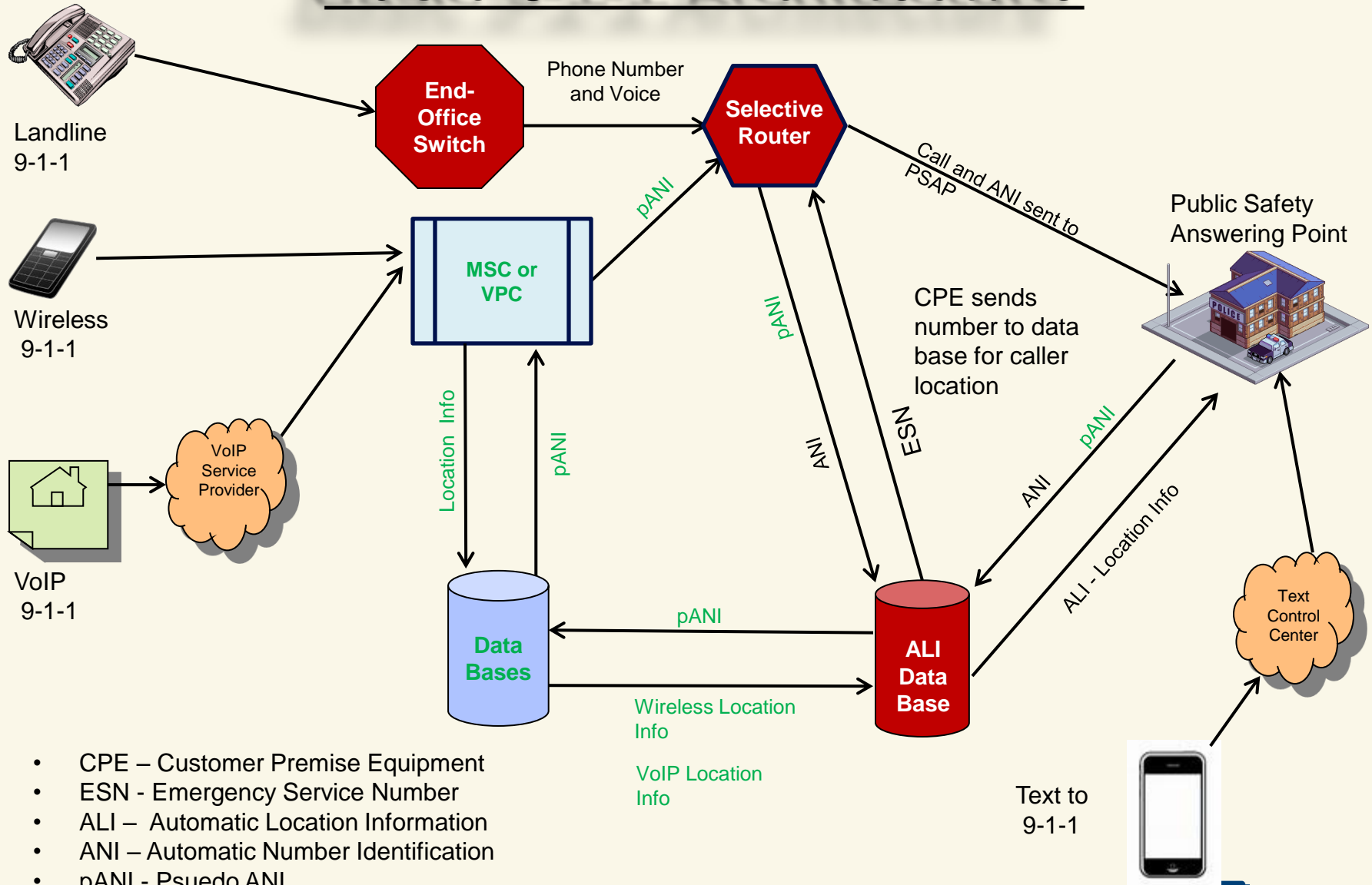- Role of PSAP
- Next Steps

9-1-1 in California Today

2016 California 9-1-1 Call Statistics

Total 9-1-1 Calls: 28,507,534

- 80% Wireless
- 16% Wireline
- 3% Voice over IP
- 1% Other to include Telematics
- ~ 5k Text Messages

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Basic 9-1-1 Architecture

Landline 9-1-1 → **End-Office Switch** → **Selective Router**

Phone Number and Voice

Wireless 9-1-1 → **MSC or VPC**

VoIP 9-1-1 → **VoIP Service Provider** → **MSC or VPC**

pANI

Location Info

pANI

pANI

ANI

ESN

Call and ANI sent to PSAP

CPE sends number to data base for caller location

Public Safety Answering Point

pANI

ANI

ALI - Location Info

Data Bases

pANI → **ALI Data Base**

Wireless Location Info

VoIP Location Info

Text Control Center

Text to 9-1-1

- CPE – Customer Premise Equipment
- ESN - Emergency Service Number
- ALI – Automatic Location Information
- ANI – Automatic Number Identification
- pANI - Psuedo ANI
- VoIP – Voice over IP
- MSC – Mobile Switching Center
- VPC – VoIP Positioning Center

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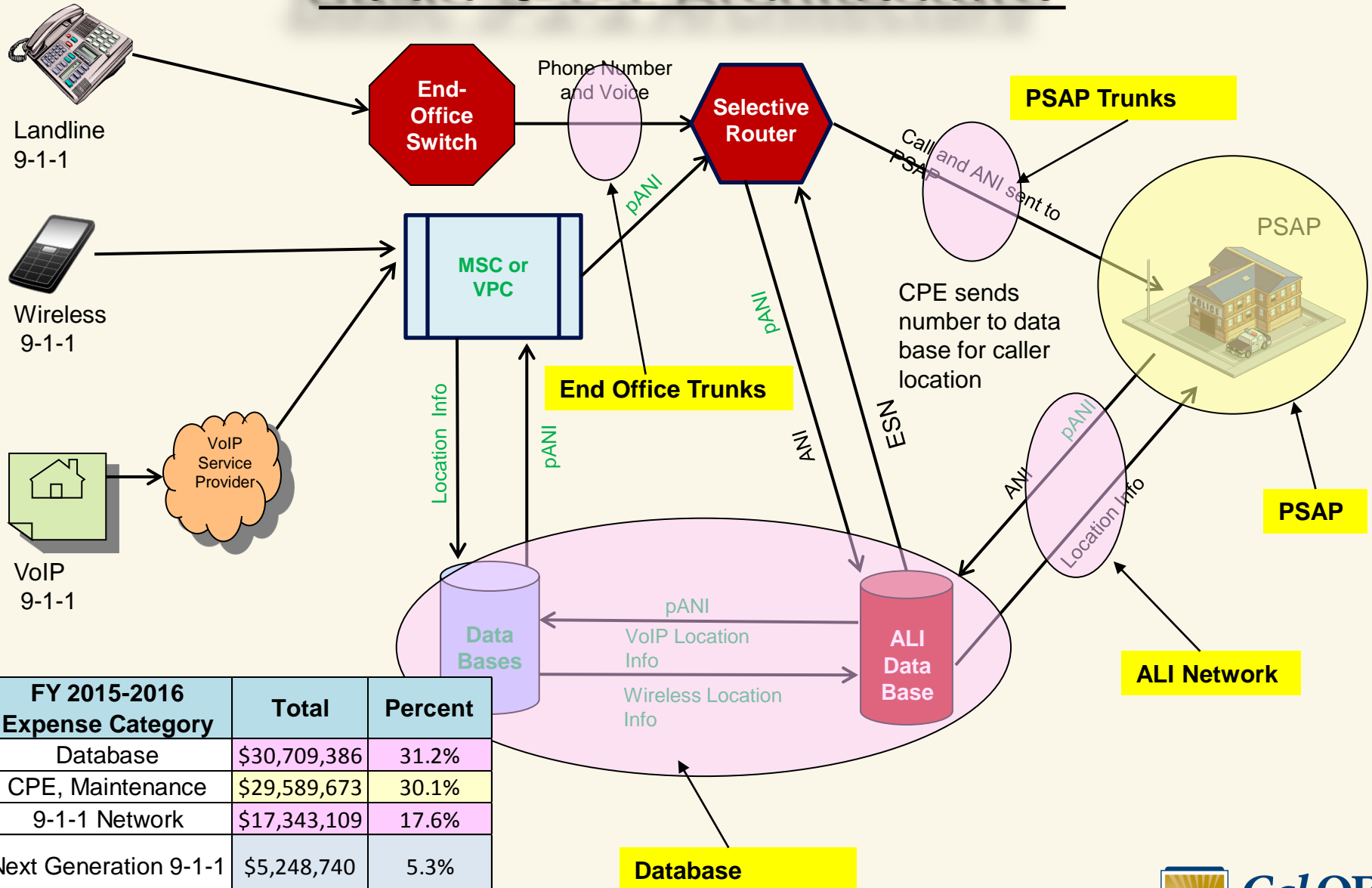GOVERNOR'S OFFICE OF EMERGENCY SERVICES

5

Current 9-1-1 System

- Based on 1970's technology
- Supports voice and limited data
- Infrastructure beyond end of life
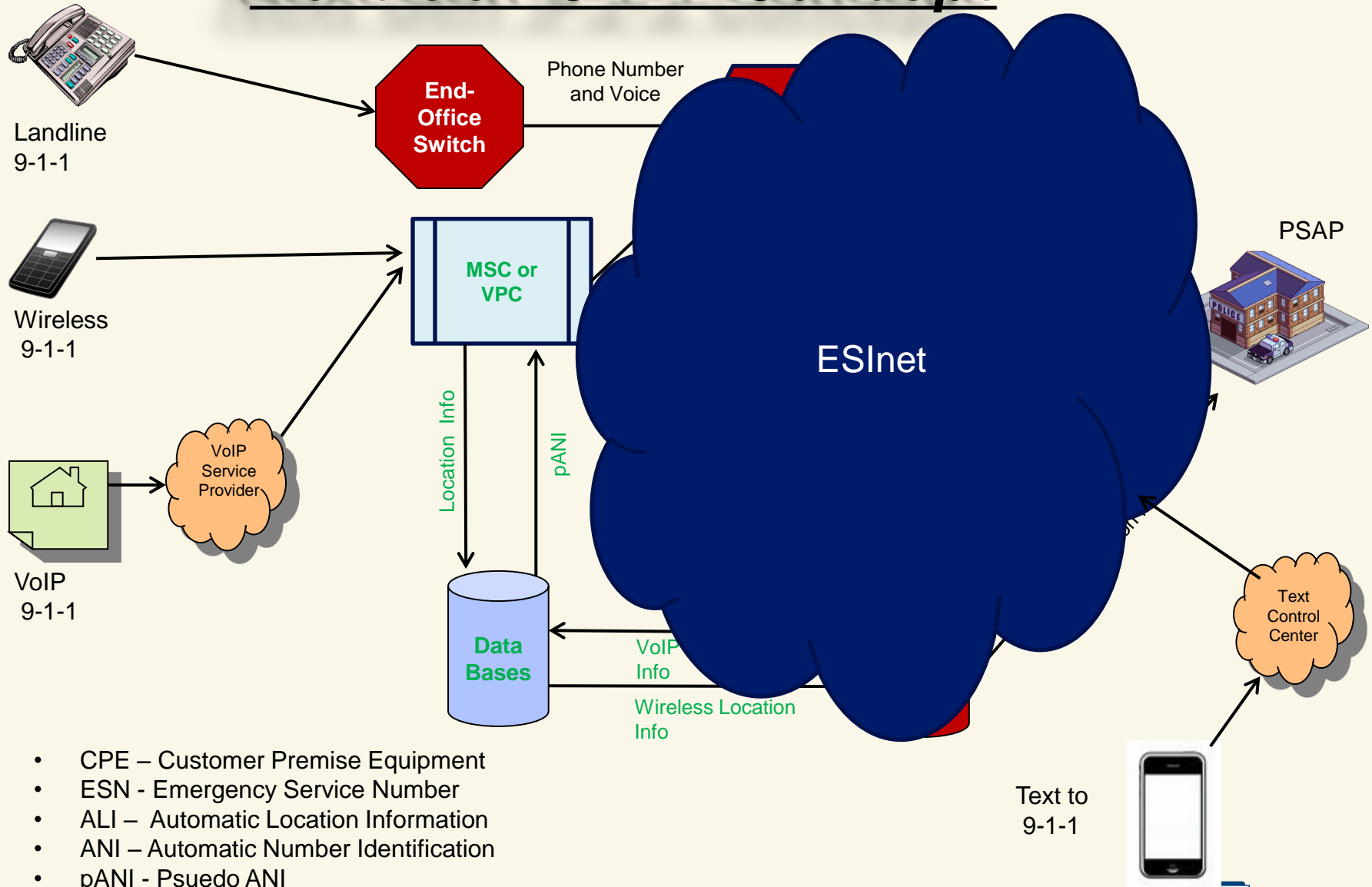- Does not meet needs of current technology

Basic 9-1-1 Architecture

FY 2015-2016 Expense Category	Total	Percent
Database	$30,709,386	31.2%
CPE, Maintenance	$29,589,673	30.1%
9-1-1 Network	$17,343,109	17.6%
Next Generation 9-1-1	$5,248,740	5.3%
CalFIRE	$4,051,000	4.1%
Network - Wireless	$2,940,969	3.0%

Next Gen 9-1-1 Concept

Landline 9-1-1

Wireless 9-1-1

VoIP 9-1-1

End-Office Switch

MSC or VPC

VoIP Service Provider

Phone Number and Voice

Location Info

pANI

Data Bases

ESInet

PSAP

Text Control Center

VoIP Info

Wireless Location Info

Text to 9-1-1

- CPE – Customer Premise Equipment
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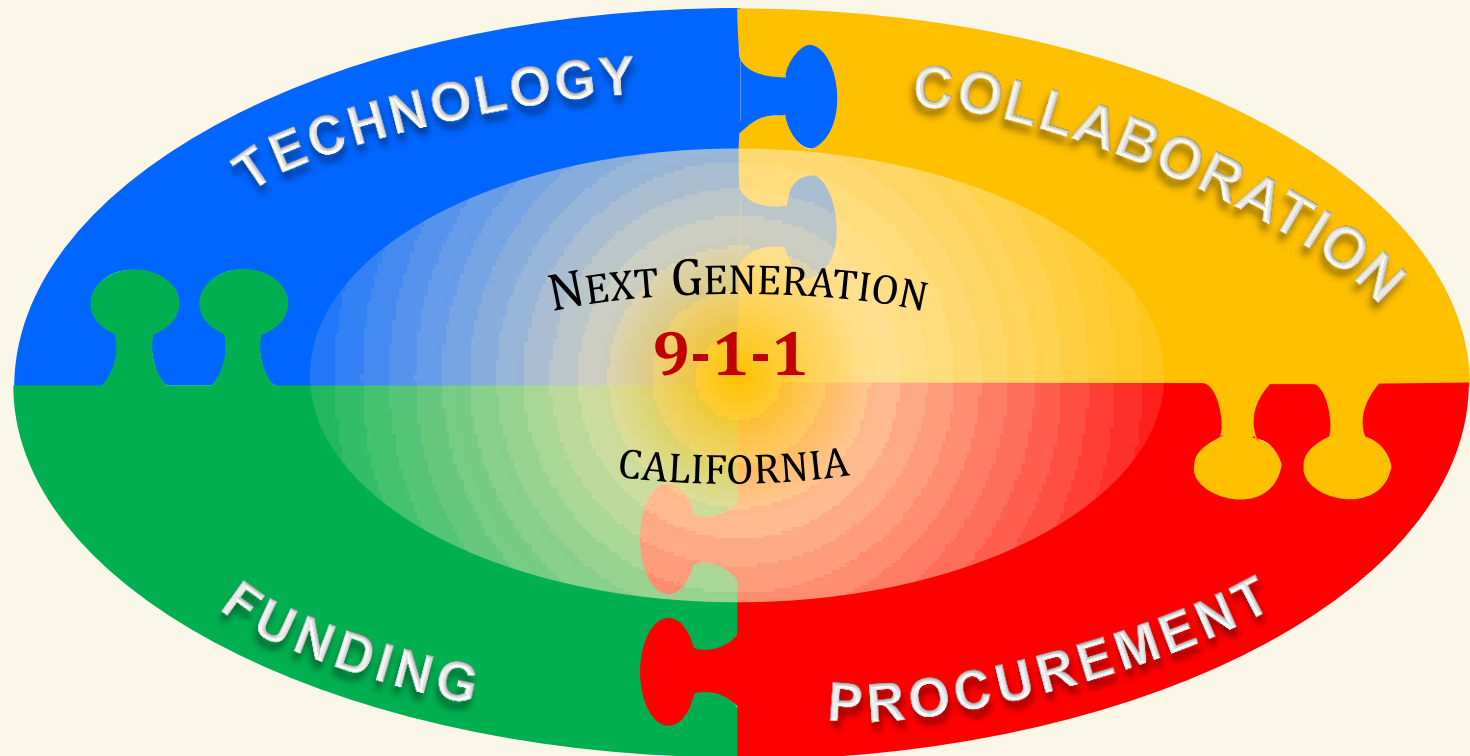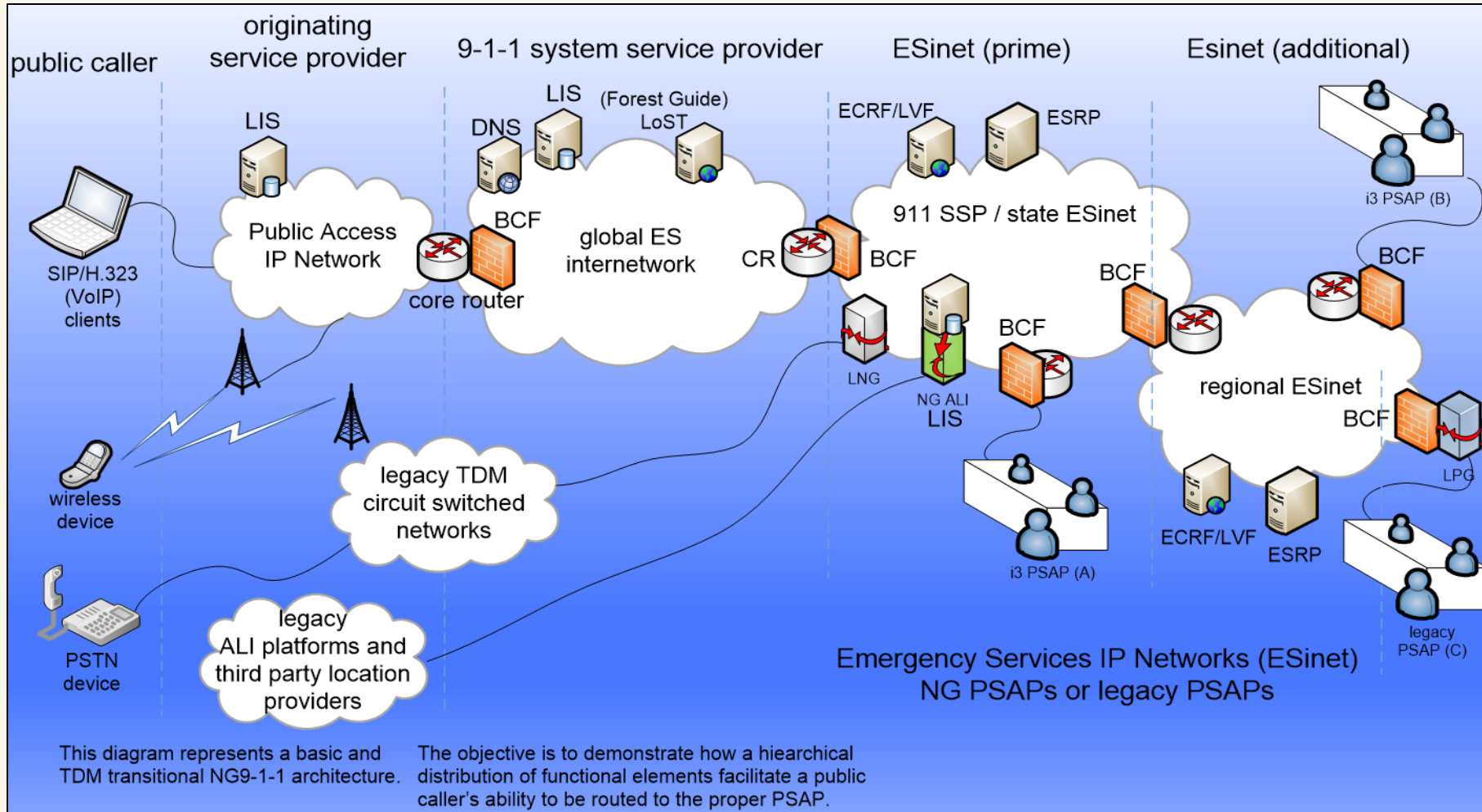
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Why Next Gen 9-1-1?

- Faster call delivery
- Increased routing accuracy
- Increased routing functionality
  - Call overflow and backup
- Updated Geographic Information System (GIS)
- Prepared for wireless location data
- Prepared for newer technologies
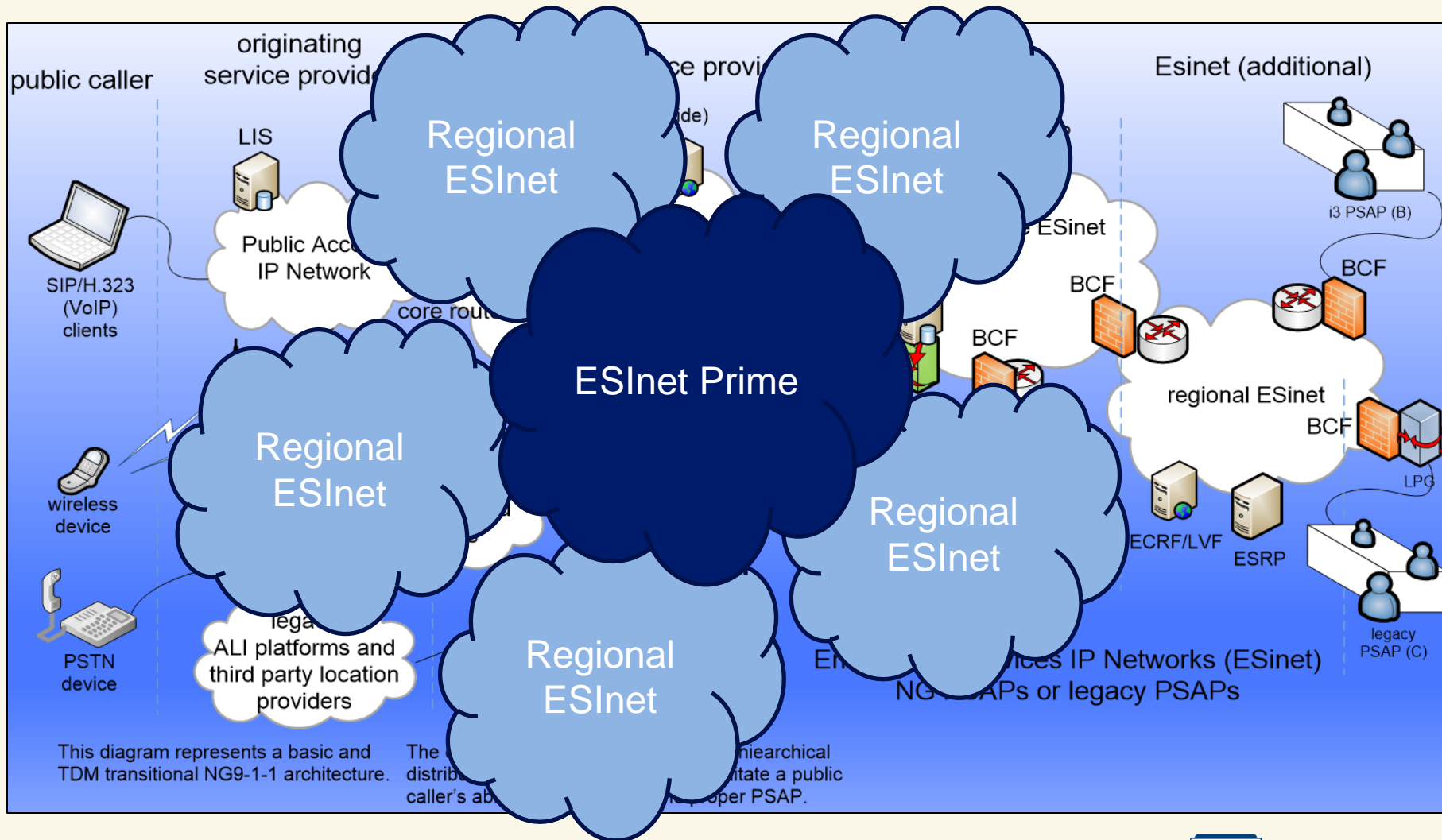- Keeps California in driver's seat

Next Gen 9-1-1 in California

TECHNOLOGY

COLLABORATION

NEXT GENERATION
9-1-1
CALIFORNIA

FUNDING

PROCUREMENT

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Next Gen 9-1-1 Design

This diagram represents a basic and TDM transitional NG9-1-1 architecture.

The objective is to demonstrate how a hierarchical distribution of functional elements facilitate a public caller's ability to be routed to the proper PSAP.

Next Gen 9-1-1 Design

Next Gen 9-1-1 Components

- **ESRP** - Emergency Services Routing Proxy essentially replaces the selective routers in NG9-1-1.
- **ECRF** - Emergency Call Routing Function is the functional element where caller location and routing information for that call is stored.
- **PRF** – The Policy Routing Function is where default, alternate, contingent, and emergency routes are located. The PRF is the specific functionality regarding how those routes are changed.
- **ALI DB service** - The Automatic Location Information DataBase is being used to route calls in a legacy system
- **LIS** – Location Information Server will transition the ALI database transition into the ESInet / NG9-1-1 core
- **LVF** - The ECRF connects to the LIS to determine location and validates it through a Location Validation Function (LVF).
- **LSRG** – Legacy Selective Router Gateway
- **LNG** – Legacy Network Gateway
- **LPG** – Legacy PSAP Gateway

Next Gen 911 ESInet Statewide Regional Map

TECHNOLOGY

COLLABORATION
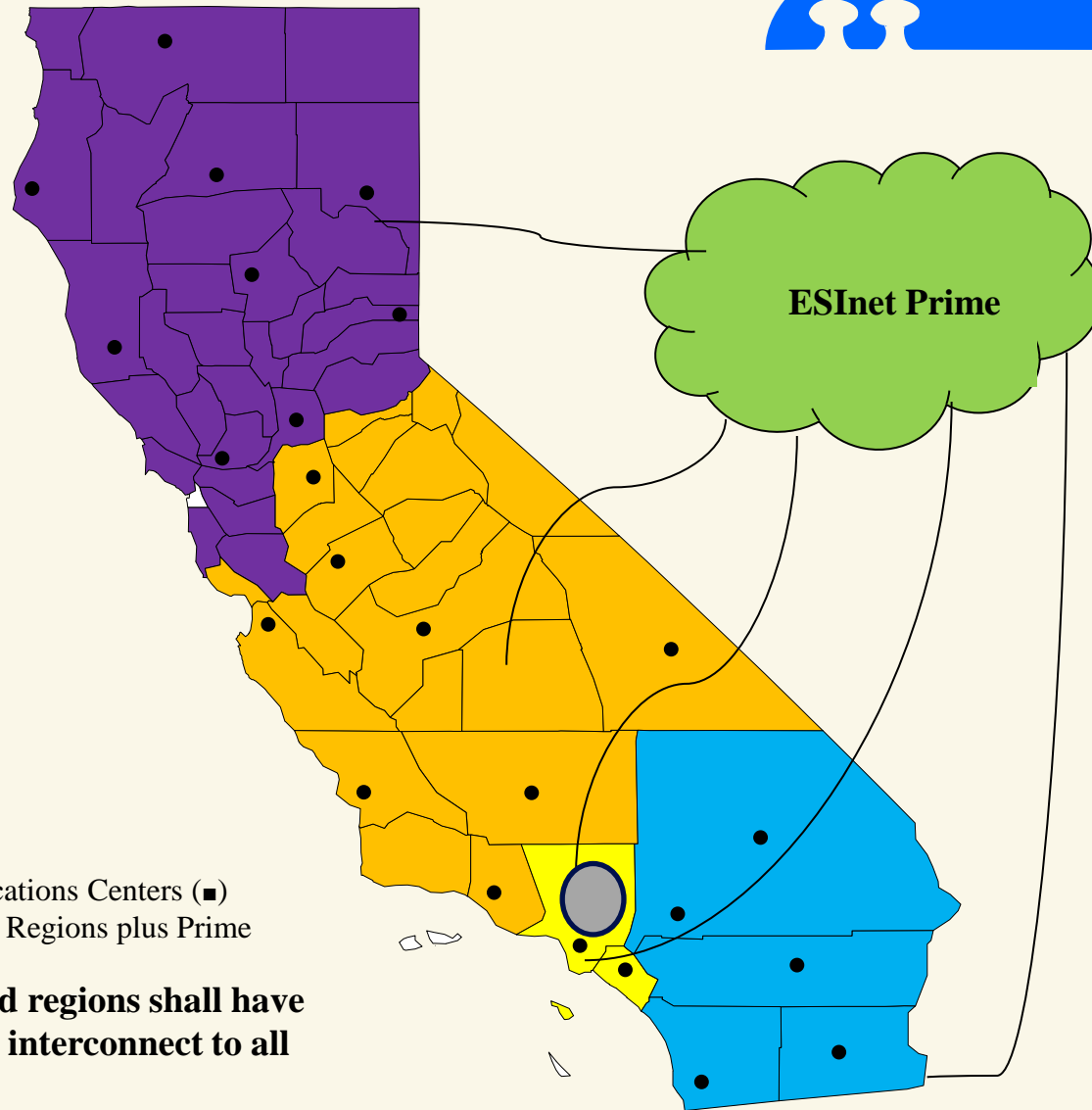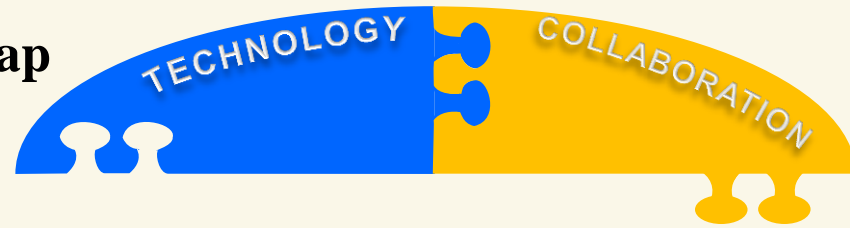
ESInet Prime

Northern Region

Central Region

Los Angeles City

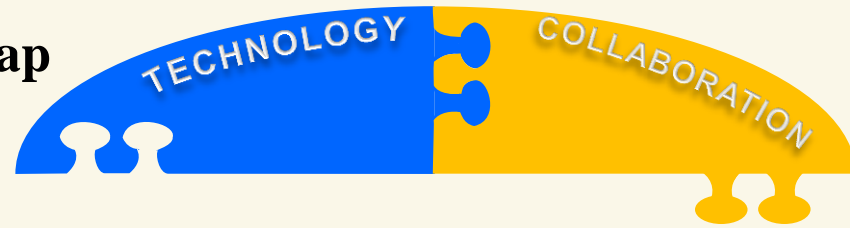Los Angeles County

Southern Region

Map Depicts:
-58 Counties
-24 CHP Communications Centers (■)
-5 Defined ESINET Regions plus Prime

All five identified regions shall have the capability to interconnect to all other regions.

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Next Gen 911 ESInet Statewide Regional Map

Region	Annual Call Volume
Northern:	7,196,063
Central:	5,225,059
LA/Orange County:	4,838,911
LA City:	5,467,062
Southern:	5,563,340

*Orange County and CHP Irvine included with LA County

*CHP LA included with LA City

*All figures are from 2016 calendar year

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Next Gen 9-1-1 Overlap

COLLABORATION

Vendor
Technical Specifications
Legacy / NG 9-1-1 Transition
Ongoing Service Management

PSAP
PSAP & Regional Specifications
Day-to-day 9-1-1 Operations
Situational Awareness

System Delivery

NG 9-1-1

System Design

Call Delivery

CalOES
Best Practices
Project Oversight
Strategic Roadmap

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Role of Cal OES

- Responsibility for procurement, design, and implementation of all ESInets
- Develop policies and standards for the system based on PSAP service requirements
- Manage regional and prime ESInets
- Coordinate GIS data
- Align California NG9-1-1 program with national efforts and vision for a nationwide system.
- Establish policies and best practices for NG9-1-1 activities across the state including network operation, monitoring, and service management
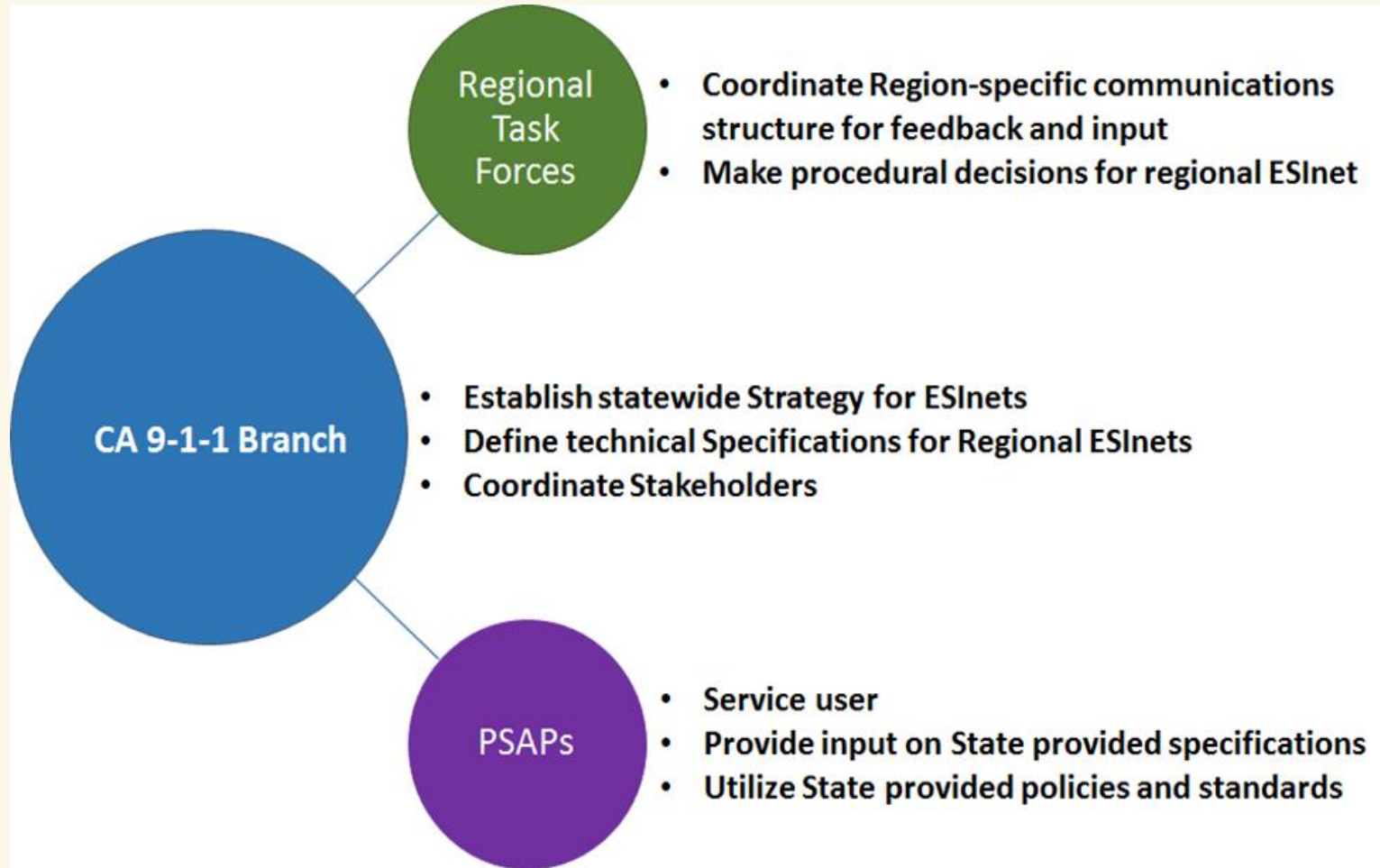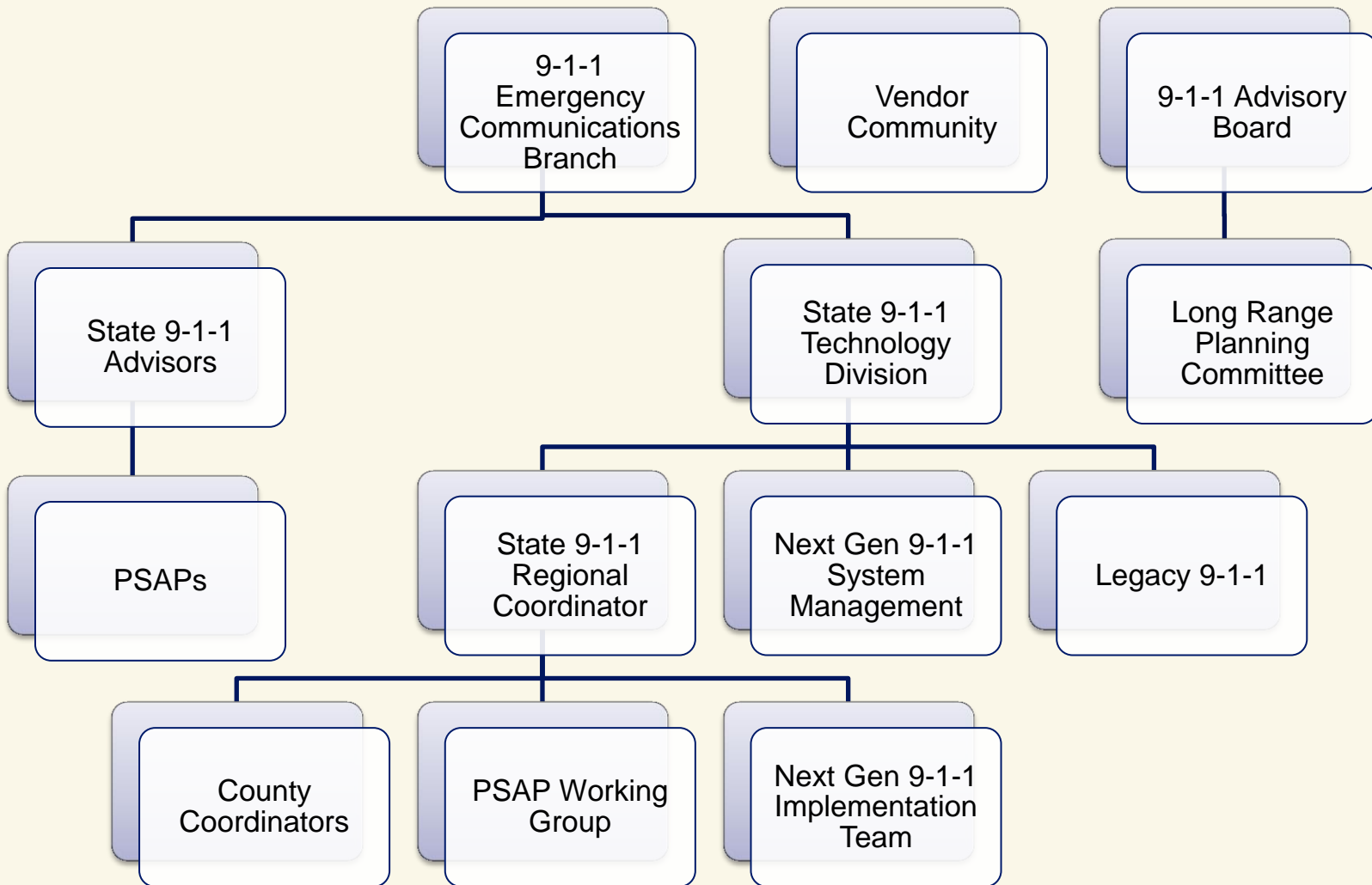
Role of PSAP

- Goal is to maintain current paradigm
- Procurement and installation of CPE
- Communication with CA 9-1-1 Branch
- Providing network performance feedback
- Trouble reporting to vendor and CA 9-1-1 Branch
- Have input into approach and strategy
- Locally implement system objectives

Regional Task Force

Regional Task Forces
- Coordinate Region-specific communications structure for feedback and input
- Make procedural decisions for regional ESInet

CA 9-1-1 Branch
- Establish statewide Strategy for ESInets
- Define technical Specifications for Regional ESInets
- Coordinate Stakeholders

PSAPs
- Service user
- Provide input on State provided specifications
- Utilize State provided policies and standards

COLLABORATION

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Governance Structure

COLLABORATION

```
                    ┌─────────────────┐   ┌─────────────┐   ┌─────────────────┐
                    │     9-1-1       │   │   Vendor    │   │  9-1-1 Advisory │
                    │   Emergency     │   │  Community  │   │      Board      │
                    │ Communications  │   │             │   │                 │
                    │     Branch      │   │             │   │                 │
                    └─────────────────┘   └─────────────┘   └─────────────────┘
```

- 9-1-1 Emergency Communications Branch
  - State 9-1-1 Advisors
    - PSAPs
  - State 9-1-1 Technology Division
    - State 9-1-1 Regional Coordinator
      - County Coordinators
      - PSAP Working Group
      - Next Gen 9-1-1 Implementation Team
    - Next Gen 9-1-1 System Management
    - Legacy 9-1-1
- Vendor Community
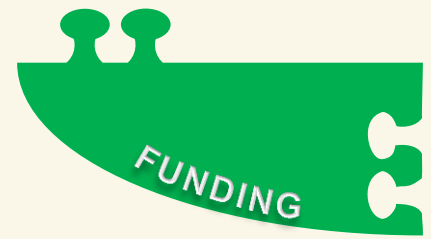- 9-1-1 Advisory Board
  - Long Range Planning Committee

Cal OES
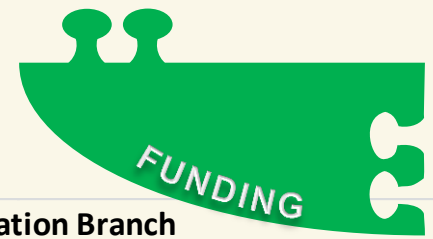GOVERNOR'S OFFICE
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Funding Plan

- Near Term (FY 2017/2018)
  - Use fund balance to support Next Gen 9-1-1 deployment
- Long Term (FY 2018/2019)
  - Remove technology specific language from SETNA funding model

SETNA Fund Details

| State Emergency Telephone Number Account - CA 9-1-1 Emergency Communication Branch				
	2015-16	**2016-17***	**2017-18***	**2018-19***
0022 State Emergency Telephone Number Account				
BEGINNING BALANCE:	$72,374,000	$53,451,000	**$37,905,000**	**$2,926,000**
REVENUES, TRANSFERS, AND OTHER ADJUSTMENTS				
4140500 Emergency Telephone User's Surcharge	81,605,000	**$75,549,000**	**$69,573,000**	**$69,573,000**
Prepaid	-	**$11,181,000**	**$9,900,000**	**$9,900,000**
Total Revenues, Transfers, and Other Adjustments	$81,606,000	**$86,730,000**	**$79,473,000**	**$79,473,000**
Total Resources:	$153,980,000	**$140,181,000**	**$117,378,000**	**$82,399,000**
EXPENDITURE AND EXPENDITURE ADJUSTMENTS				
Expenditures:				
0690 Office of Emergency Services (State Operations)	$2,586,000	**$2,430,000**	**$2,430,000**	**$2,900,000**
0690 Office of Emergency Services (Local Assistance)	$87,727,260	**$88,700,000**	**$96,000,000**	**$94,000,000**
Next Generation 9-1-1	$5,248,740	**$5,300,000**	**$10,000,000**	**$25,000,000**
0860 State Board of Equalization (State Operations)	$1,125,000	**$1,759,000**	**$1,726,000**	**$1,726,000**
3540 Department of Forestry of Fire Protection (State Operations)	$3,827,000	**$3,815,000**	**$3,815,000**	**$3,815,000**
8880 Financial Information System for California (State Operations)	$15,000	**$12,000**	**$10,000**	**$10,000**
9900 Statewide General Administrative Expenditures	-	**$260,000**	**$471,000**	**$471,000**
Total Expenditures and Expenditure Adjustments	$100,529,000	**$102,276,000**	**$114,452,000**	**$127,752,000**
FUND BALANCE	$53,451,000	**$37,905,000**	**$2,926,000**	**($45,523,000)**
Key Note: Actual Revenues and Expenditures are not shaded.				
Projected Expenditures shaded in orange are based on DOF Fund Condition Statement				
Projected Revenues shaded in blue are based on historical data and predicted CPE replacements.				

What will it cost?
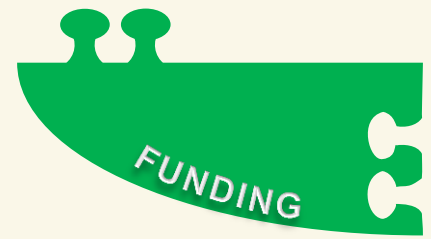
| Year	Legacy 9-1-1 costs	NG9-1-1 costs	Estimated Total
FY 2017-18	$104,250,000	$10,000,000	$114,250,000
FY 2018-19	$102,250,000	$25,000,000	$127,250,000
FY 2019-20	$76,469,000	$44,000,000	$120,469,000
FY 2020-21	$65,569,000	$66,000,000	$131,569,000
FY 2021-22	$54,669,000	$88,000,000	$142,669,000
FY 2022-23	$50,200,000	$97,020,000	$147,220,000

Procurement Options
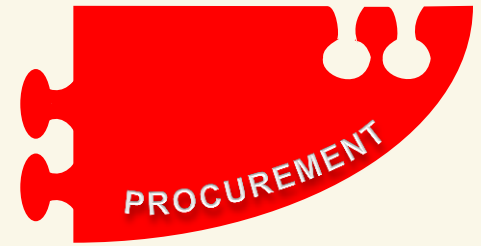
- Typical for Regional ESInet Procurement
  - ~24 months to develop contract
  - ~18 months to deploy ESInet
  - Typically a 3-7 year contract term

- We will have five ESInets and one prime – the implication is perpetual procurement

- Other Options
  - Contract Vehicle that allows services to transition
  - National Association of State Procurement Officials (NASPO – Formerly WSCA)
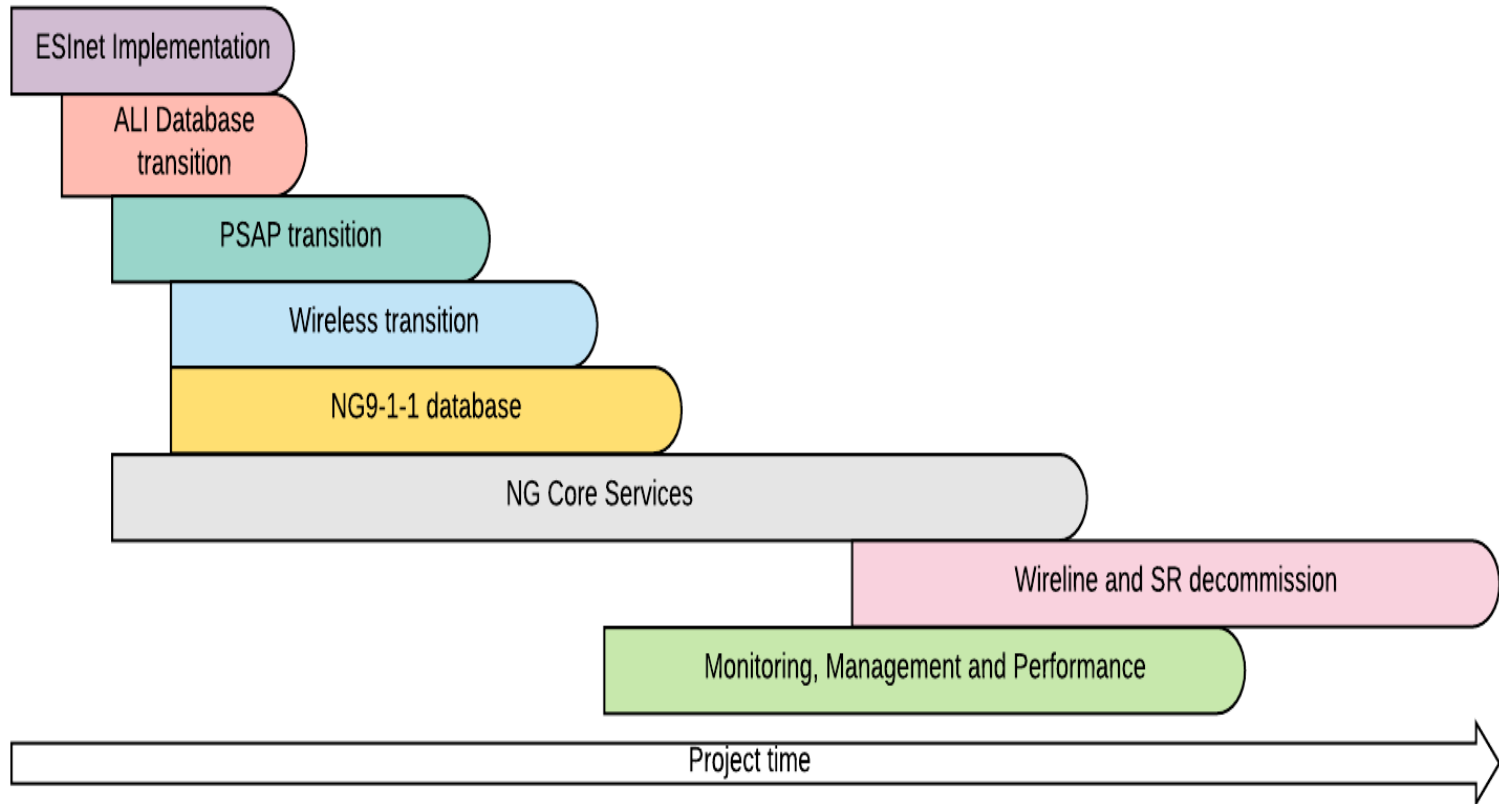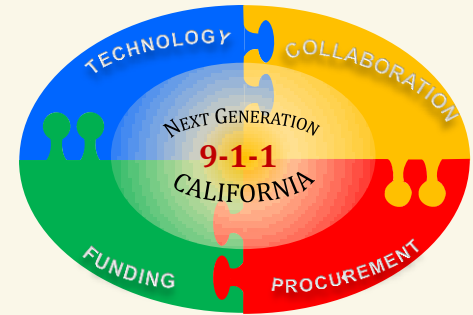 - Tariff

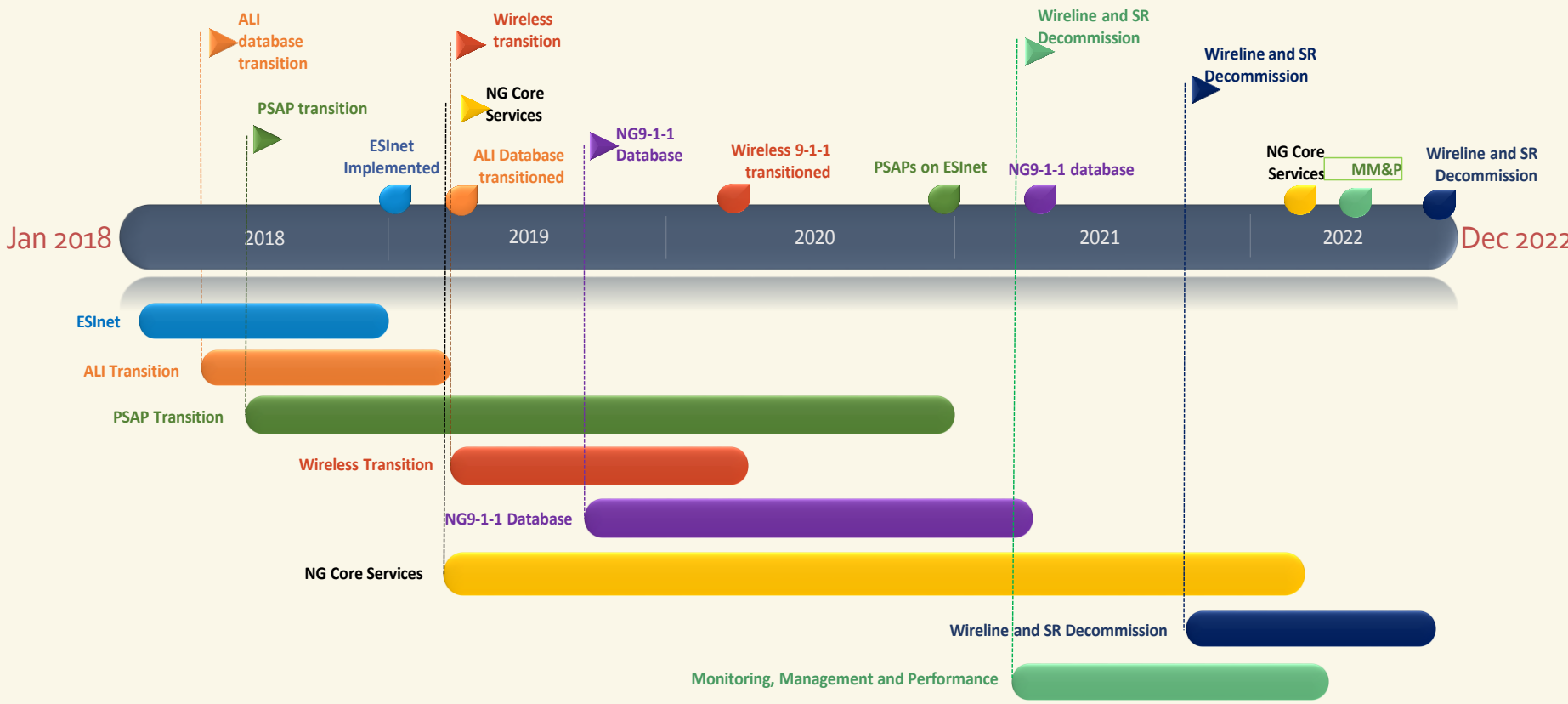- Other Contracts

Procurement Plan
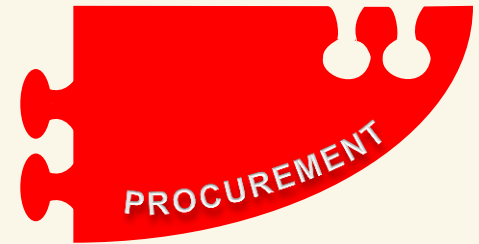
- Near Term (1-3 years)
  - Use the existing Next Gen IFB
  - Develop SOW
  - May need to amend IFB
- Long Term (3-5 years)
  - Develop contract similar to CalNet
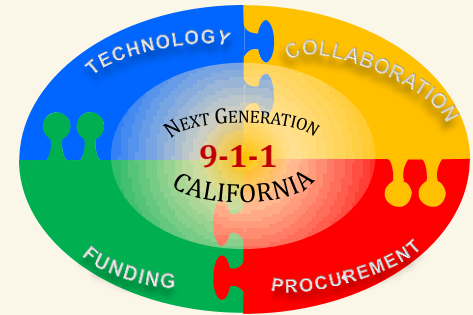 - Use for all 9-1-1 services

Transition Planning

Timeline

Next Generation 9-1-1 California — Technology, Collaboration, Funding, Procurement

Timeline bars:

- ALI database transition
- PSAP transition
- ESInet Implemented
- Wireless transition
- NG Core Services
- ALI Database transitioned
- NG9-1-1 Database
- Wireless 9-1-1 transitioned
- PSAPs on ESInet
- Wireline and SR Decommission
- NG9-1-1 database
- Wireline and SR Decommission
- NG Core Services
- MM&P
- Wireline and SR Decommission

Jan 2018 — 2018 — 2019 — 2020 — 2021 — 2022 — Dec 2022

Project bars:
- ESInet
- ALI Transition
- PSAP Transition
- Wireless Transition
- NG9-1-1 Database
- NG Core Services
- Wireline and SR Decommission
- Monitoring, Management and Performance

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Deployment Timeline

- Northeast ESInet– Jun 2017- Mar 2018
- Pasadena ESInet – Jul 2017 – Jun 2018
- Prime ESInet – Jan 2018 – Jan 2020
- Northern ESInet – Mar 2018 - Sept 2019
- Central ESInet – Sept 2018 – Mar 2020
- LA County – Jan 2019 – May 2020
- LA City – May 2019 – Jan 2021
- Southern ESInet – Sept 2019 – June 2021
- All selective routers decommissioned - 2022

True Next Gen 911

- Think regionally
    - Shared CAD, CPE, RMS, and radio
- True ESInet and Next Generation
    - Computer Aided Dispatch (CAD)
    - Customer Premise Equipment (CPE)
    - Records Management System (RMS)
    - Radio console
- Fully Deployed GIS data
- Procedures versus technology
    - Avoid limiting technology with existing procedures

CAD

CPE

Regional
ESInet

RMS

Radio Console

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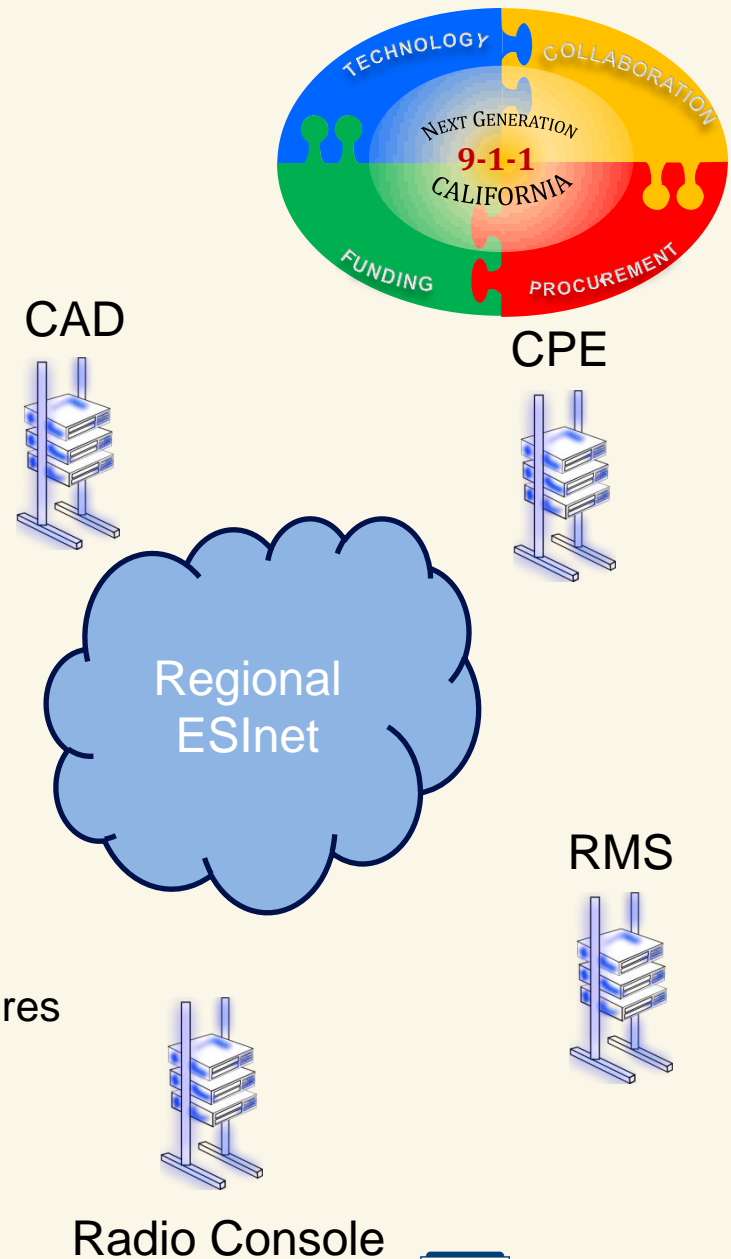
Next Gen 9-1-1 PSAP Meetings

July 14 – Bay Area Region

    10:00 – 13:30

    Alameda County OES facilities

    4985 Broder Blvd, Dublin, CA 94568

July 18 – Sacramento Region

    09:00 – 12:00

    Rocklin Police Department

    4080 Rocklin Road, Rocklin, CA 95677

July 20 – Northern Region (w/FirstNet)

    09:00 – 15:00

    Redding City Council Chambers

    777 Cypress Ave., Redding, CA 96001

July 21 – Coastal Region (w/FirstNet)

    10:00-16:00

    PG&E Kendall Rd Campus

    1250 Kendall Rd

    San Luis Obispo, CA 93401

July 25 – Los Angeles Region

    10:00 – 13:00

    USFS – Angeles National Forest HQ

    701 N. Santa Anita Ave.

    Arcadia, CA 91006

July 26 – Inland Region

    09:00 – 12:00

    San Bernardino Sheriff's Department

    Aviation Division

    199 N. Hangar Way

    San Bernardino, CA 92415

July 27 – Southern Region

    10:00 – 13:00

    Escondido PD

    1163 Centre City Parkway

    Escondido, CA 92026

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QUESTIONS